Attempts to eradicate two Pelargonium viruses (PFBV and PLPV) by meristem culture and shoot-tip cryotherapy

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Résumé en anglais	Attempts to eradicate the Pelargonium flower break virus (PFBV) and Pelargonium line pattern virus (PLPV) by meristem culture and apex “droplet-vitrification” cryopreservation was carried out using 5 different cultivars. A simple meristem culture did not permit to eliminate PFBV and only 15% of Pelargonium x hortorum ‘Stellar Artic’ plants regenerated from meristems was PLPV-ELISA-negative. Plants regenerated from cryopreserved apices were tested by DAS-ELISA after a 3-month growing period. Viruses were not detected in 25 and 50% of the tested plants for PFBV and PLPV respectively. Immunolocalisations were carried out for virus localisation in apices from greenhouse plants (control) and vitroplants regenerated after meristem culture or cryopreservation. Immunolocalisations realised on control explants excised from DAS-ELISA positive plants showed that PFBV and PLPV were present in the apices, even in the meristematic dome. However, viral particles were more numerous in the cells of the basal zone than in the more meristematic ones. Immunolocalisations realised on apices from the DAS-ELISA negative cryoregenerated plants showed the viruses were still present. Our results firstly demonstrated that PFBV and PLPV are even present inside meristematic cells and secondly that cryopreservation could decrease their amount in Pelargonium plants but without eliminating them totally. More knowledge on virus behaviour during cryopreservation processes could optimize the management of genetic resources using this conservation method.
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